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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/718,586 | 11/24/2003 | Simon Cao | 1398.1001DD | 1681 |
| 21171 | 7590 | 05/20/2004 | EXAMINER | |
| STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 | | | CURTIS, CRAIG | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2872 | |

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,586

Applicant(s)

CAO, SIMON

Examiner

Craig Curtis

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22, 23, 31 and 33 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 22, 23, 31 and 33 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/24/2003.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Disposition of the Instant Application

- This Office Action is responsive to Applicant's Preliminary Amendment filed on 24 November 2004.
- By this amendment, Applicant has canceled claims 1-21, 24-30, and 32.
- Claims 22, 23, 31, and 33 presently are pending in the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 22, 23, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duck et al. (5,748,363) in view of Kurata et al. (5,689,359).**

With regard to claim 22, Duck et al. disclose the invention as claimed—[a]n optical system (see Figs. 13 & 15) comprising:

an optical isolator/monitor/amplifier, said optical isolator/monitor/amplifier comprising:

a broadband optical isolator (encompassed by optical circulator teachings); and

a front four-fiber ferrule (see 12 in Fig. 13) including a first and a second light input fiber and a first and a second light output fiber (Fig. 13), said broadband optical isolator transmitting light received from one of the light input fibers in a forward direction therethrough to a

corresponding one of the light output fibers and preventing transmission of light in a reverse direction to the input fibers (see Fig. 13); and

monitor/amplifier (16, etc.) components monitoring and amplifying the light traveling in the forward direction, wherein a light entering the first input light fiber travels in a forward propagation direction through the optical isolator/monitor/amplifier and is output by the first output light fiber (see Fig. 13)—**EXCEPT FOR** explicit teachings (i.e., in a single embodiment) of the following additionally recited claim limitations:

wherein said optical system further comprises an erbium-doped fiber, said Er-doped fiber being coupled between said first output light fiber and said second input light fiber; and wherein said broadband optical isolator is a single-stage reflective optical isolator.

Duck et al., however, do disclose a prior-art optical system in which an Er-doped fiber is used (see Fig. 5), and Kurata et al. disclose a reflective optical isolator (see, e.g., Figs. 2, 5A, and 5B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the optical system of Duck et al. such that it comprise an Er-doped fiber, the prior-art teaching of same being acknowledged by Duck et al., for at least the purpose of allowing additional stimulated decay to take place in addition to that already made possible by Er-doped amplifier¹⁶; it would also have been obvious to have modified the optical system of Duck et al. such that its broadband optical isolator be single-stage and of the reflective variety, as taught by Kurata et al., for at least the purpose of reducing the number of components needed to alter incoming signals in a desired fashion.

With regard to claims 23 and 31, please see, e.g., lens 9 in Fig. 2 of Kurata et al., said lens collimating input light and focuses output light, and mirror 14; also see the dual-pumped EDFA teaching disclosed by Duck et al. (col. 5, ll. 65-67 & col. 6, ll. 1-2), such dual pumping being used to compensate for loss of signal strength; the reciprocally rotating element teachings recited in these claims being encompassed by the above-cited optical circulator teachings of the combination.

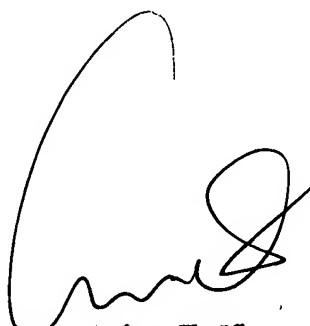
With regard to claim 33, please see Fig. 15 of Duck et al., in which ports 24, 26, 34, and 36 are depicted.

Contact Information

2. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Craig Curtis, whose telephone number is (571) 272-2311. The centralized facsimile phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature regarding the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

C.H.C.
Craig H. Curtis
Group Art Unit 2872
13 May 2004



Audrey Chang
Primary Examiner
Technology Center 2800